

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Steger on July 16, 2010.

The application has been amended as follows:

53. (New) An exposure apparatus that transfers a wafer from an outside of the exposure apparatus, exposes the wafer with an exposure light through a liquid, and forms a predetermined pattern on the wafer, the exposure apparatus comprising:
an optical member that illuminates the wafer with the exposure light;
a wafer table that is provided at an image plane side of the optical member, and that movably holds the wafer;
an opposing member that is provided apart from the wafer table along an optical axis direction of the optical member, and that is movable along the optical axis direction with respect to the optical member; and
a vibration isolation device that supports the optical member and the opposing member while preventing vibrations.

77. (New) An exposure method that transfers a wafer from an outside of an exposure apparatus, exposes the wafer with an exposure light through a liquid, and forms a predetermined pattern on the wafer, the exposure method comprising: illuminating the wafer with the exposure light using an optical member; providing a wafer table at an image plane side of the optical member; movably holding the wafer using the wafer table; providing an opposing member apart from the wafer table along an optical axis direction of the optical member, the opposing member being movable along the optical axis direction with respect to the optical member; and supporting the optical member and the opposing member, while preventing vibrations, using a vibration isolation device.

Allowable Subject Matter

2. Claims 7-15 and 17-25 were previously allowed in the Final Rejection of 11/04/2008. See Final Rejection of 11/04/2008 for reasons of allowance.
3. Claims 7-25, 29-30, and 40-81 are allowed.
4. The following is a listing/ statement of reasons for the indication of allowable subject matter.

The prior art search failed to show or suggest the prior use of:

The exposure apparatus of independent claim 53, specifically: the exposure apparatus that exposes a wafer with an exposure light through a liquid, and forms a predetermined pattern on the wafer, the exposure apparatus comprising: an optical member that illuminates the wafer with the exposure light;

a wafer table that is provided at an image plane side of the optical member, and that movably holds the wafer;

an opposing member that is provided apart from the wafer table along an optical axis direction of the optical member, and that is movable along the optical axis direction with respect to the optical member; and

a vibration isolation device that supports the optical member and the opposing member while preventing vibrations.

The exposure method of independent claim 69, specifically: the exposure method in which the space between a projection optical system which projects a pattern onto an object and an object placed on the image-plane side of the projection optical system is filled with a liquid, and exposure to the pattern is performed through the liquid, the method comprising:

positioning an opposing member apart from the object in the direction of the optical axis of the projection optical system; and

moving the object and the opposing member apart along the optical axis direction, in response to notification of occurrence of an abnormality.

The exposure method of independent claim 75, specifically: the exposure method in which the space between a projection optical system which projects a pattern onto an object and the object placed on the image-plane side of the projection optical

system is filled with a liquid, and exposure to the pattern is performed through the liquid,
the method comprising:

positioning an opposing member apart from the object in a direction of the optical axis of the projection optical system, the opposing member being movable relative to the projection optical system in the optical axis direction;

supporting the opposing member using a first frame; moving the object in the optical axis direction using an elevating device;

supporting the opposing member, movably in the optical axis direction, through the first frame, using a vibration isolation device; and

controlling at least one of the elevating device and the vibration isolation device
to move apart the object and the opposing member along the optical axis direction, in
response to notification of occurrence of an abnormality.

The exposure method of independent claim 77, specifically: the exposure method that exposes the wafer with an exposure light through a liquid, and forms a predetermined pattern on the wafer, the exposure method comprising:
illuminating the wafer with the exposure light using an optical member; providing a wafer table at an image plane side of the optical member; movably holding the wafer using the wafer table; providing an opposing member apart from the wafer table along an optical axis direction of the optical member, the opposing member being movable along the optical axis direction with respect to the optical member; and

supporting the optical member and the opposing member, while preventing vibrations, using a vibration isolation device.

5. Dependent claims 8-16, 29-30, and 40-45 are allowable due to dependency upon allowable independent claim 7.
6. Dependent claims 18-25 and 46-52 are allowable due to dependency upon allowable independent claim 17.
7. Dependent claims 54-68 are allowable due to dependency upon allowable independent claim 53.
8. Dependent claims 70-74 are allowable due to dependency upon allowable independent claim 69.
9. Dependent claim 76 is allowable due to dependency upon allowable independent claim 75.
10. Dependent claims 78-81 are allowable due to dependency upon allowable independent claim 77.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent prior art is closely related art that individually or in combination could be considered grounds for rejection. See references cited for a listing of the pertinent prior art found and the prior art found.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Smyth whose telephone number is 571-270-1746. The examiner can normally be reached on 7:30AM - 5:00PM; Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 2881

/Bernard E Souw/
Primary Examiner, Art Unit 2881

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